

Plateau and the extreme Northwest; but it was somewhat warmer than normal over most of the middle and upper Missouri Valley and the northern Rocky Mountain region.

The month averaged warmer than normal almost everywhere east of the Mississippi River, and usually by 3° to 5° from southern New England to eastern Virginia. Portions of northwestern New York and of Tennessee averaged a trifle cooler than normal. West of the Mississippi River, much of Minnesota and of the west Gulf region, also a part of Montana, averaged warmer than normal; but otherwise the month averaged cooler than normal, particularly in North Dakota, the southern Plateau region, Nevada, and the interior of California. A number of points in Arizona or districts adjacent thereto had deficiencies of 4° or more per day.

The highest temperatures occurred usually about the 5th to 9th in the Lake region, the Ohio Valley, and to eastward, but about the 17th to 19th in parts of the South Atlantic States. For most of the Southwest the hottest weather came about the 19th to 21st, but the Northwest, the middle Plains, and the lower Mississippi Valley scored their highest marks about the 26th to 28th. The highest reading reported anywhere was 110° in southeastern California on the 19th.

The lowest readings occurred usually about the 6th to 12th in the Pacific States, the Southwest, and the middle Plateau and Mountain sections, usually the 16th to 18th in the northern and middle Plains and the upper Mississippi Valley, during the final week of the month in the Lake region, the central valleys, and to eastward and southeastward, except in a few Atlantic States on the 3d or 4th, or else about the 10th to 12th. The very lowest was 2° above zero, at an elevated station in Colorado, on the 6th.

PRECIPITATION

The amounts measured during May were noticeably greater, for most of the country, than the amounts of the earlier spring months had been. Out of 48 States, 25 averaged above the normal May quantities, only five below 60 per cent of normal, and none below 40 per cent of normal. Yet the distribution of the May precipitation was not good. Excessively large amounts were received in the lower Mississippi Valley, chiefly between the 5th and the 20th, while most of the Florida peninsula had very heavy downpours just before the month ended.

Compared with normal amounts the western half of the country received excesses more widely than the eastern half. A large proportion of the districts along and near the Mexican border had much more than the normal precipitation, and this was the case in Nevada likewise and most districts adjacent thereto. The drainage area of the Platte River was marked by excessive rains; also northeastern Texas. Considerable shortages, however, were noted in Montana, western North Dakota, and the Black Hills region, also in central New Mexico and a few other districts.

In the eastern half, decidedly less rain than normal was reported from southern Alabama and western Florida, and thence northeastward to Maryland and New Jersey, and from these States westward over all the upper Ohio Valley and most of the lower portion besides, also over eastern Missouri and the districts adjacent to Lake Michigan. Slightly more than normal was received over most of Minnesota and eastern Iowa, central and eastern New York, and northern New England. At the close of the first paragraph of this section, two areas of decidedly excessive falls were mentioned; in the former is located the station reporting the greatest amount for May, 1930, anywhere in the country, Moorhead, Miss., where 19.70 inches fell.

SNOWFALL

East of the Plains the snowfall was of small account in those Northern States which usually record some in May. In the West, however, many of the southern and central Mountain and Plateau States received greater snowfall than usual, Nevada and Arizona showing larger averages than in any previous May. At Phoenix, where even the winters pass nearly every time without a single flake of snow, there was a brief flurry on the morning of May 9.

RELATIVE HUMIDITY

In the central and southern portions of the Plateau and Rocky Mountain regions, much of the Great Plains, and the west Gulf region, the percentages of relative humidity were nearly everywhere above normal, but generally along the Pacific and in the northern portions of the Plateau and Rocky Mountain regions, and east of the Mississippi River, except a few stations in the Lake regions, the New England States, and the southern Allegheny region, humidity percentages were less than normal, though the negative departures were in most cases not large.

SEVERE LOCAL STORMS, MAY, 1930

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the Annual Report of the Chief of Bureau]

Place	Date	Time	Width of path (yards ¹)	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Homer, Nebr.-----	1	5:10 p. m.	100	-----	\$1,500	Tornado-----	Small farm buildings damaged over path 5 miles long.	Official, U. S. Weather Bureau
Bancroft, Nebr.-----	1	5:15 p. m.	5-40	-----	40,000	do-----	Buildings on 6 farms demolished; path 7 miles.	Do.
Mound City to Maitland, Mo.	1	5:30 p. m.	50-100	-----	-----	do-----	11 farms devastated.	Do.
White Cloud, Kans., to Napier, Mo.	1	do-----	-----	-----	-----	do-----	Buildings on 2 farms demolished; path 4 miles.	Do.
Clay, Fayette, Harrison, Mitchell, Woodbury, Cerro Gordo, and Hamilton Counties, Iowa.	1	5:30-8 p. m.	-----	-----	48,400	9 tornadoes-----	No details of damage reported; some storms accompanied by hail.	Do.
Newton, Kans. (near)-----	1	5:40 p. m.	-----	-----	6,000	Tornado-----	Farm buildings damaged; livestock killed; path 8 miles.	Do.
Wichita, Kans. (20 miles north of).	1	5:50 p. m.	-----	-----	-----	do-----	No damage reported.	Do.
Wayne, Lucas, and Monroe Counties, Iowa.	1	6-8:15 p. m.	-----	1	144,200	3 tornadoes-----	Extensive damage to farm property and crops; 25 persons injured.	Do.
Dunavant, Kans., to Smithville, Mo.	1	6:15 p. m.	33-440	2	500,000	Tornado-----	About 50 farms damaged; 20 persons injured.	Do.

¹ "Mi." signifies miles instead of yards.

Severe local storms, May, 1930—Continued

Place	Date	Time	Width of path (yards)	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Fillmore to Bolekow, Mo.	1	6:20 p. m.				Tornado	A number of homes damaged or totally destroyed; some loss of machinery and livestock.	Official, U. S. Weather Bureau.
Tekamah, Nebr.	1	6:30 p. m.	333	4	\$250,000	do	Buildings on a number of farms demolished; 15 dwellings in Tekamah wrecked; about 35 persons injured; path 15 miles long.	Do.
Rosendale, to Union Star, Mo.	1	6:30-7:30 p. m.	440-1,760		\$450,000	do	Much destruction to property over path 10 miles long.	Do.
Norwich, Kans. (5 miles south of)	1	7 p. m.	100		2,500	do	Damage chiefly to farm buildings; path one-half mile long.	Do.
Tahoka, Tex.	1	do	1.5 mi.		15,000	Hail	Chief damage to buildings.	Do.
Conway, Kans. (near)	1	7:30 p. m.	75		4,000	Tornado	Damage chiefly at Elwell, where grain elevator was wrecked; path 8.5 miles.	Do.
Trempealeau County, Wis., across State to Lake Michigan	1	7:30-8 p. m.		2	1,096,000	Wind, 4 small tornadoes, and hail.	Marked loss to farm and town buildings and overhead wire systems; livestock and 15 persons injured; little crop damage.	Do.
Norborne, Mo. (10 miles northwest of)	1	9 p. m.	75-100	6	350,000	Tornado	46 farmhouses destroyed; 20 persons injured.	Do.
Garden Prairie, Ill. (near)	1	10 p. m.	880		25,000	do	Character of damage not reported; path 15 miles long.	Do.
Decatur, Ill.	1	11:50 p. m.	200		100,000	do	No details of damage; path 1 mile long.	Do.
Illinois (northern, central and west-central counties)	1	P. m.		1	150,000	Wind and thunderstorms.	Extensive property and crop damage; some damage by hail at Rockford.	Do.
Iowa (22 counties)	1					Hail and wind	Considerable damage to property throughout State.	Do.
Pipestone, Minn. (12 miles northwest of)	1					Tornado	Rural school damaged.	Journal (Sioux City, Iowa).
Chicago, Ill. (Beverly Hills district)	2	12:27 a. m.			25,000	Wind	Many buildings damaged; trees broken; several persons injured; some damage by fire.	Official, U. S. Weather Bureau.
Michigan (west-central)	2	2-4 a. m.			1,200,000	6 tornadoes	Many farm buildings, wood lots, and orchards leveled; livestock killed; greatest damage in and near Grand Rapids.	Do.
Gober, Tex.	2	12:30 p. m.	1,760			Hail	Cotton and corn badly damaged.	Do.
Tuscola and Ovalo, Tex.	2	4:30 p. m.	1,760			do	Orchards, windows, and roofs damaged.	Do.
Floyd County, Iowa	2	10 p. m.			8,500	Wind	Details of damage not reported.	Do.
Waurika, Okla. (near)	3	5 p. m.			1,000	Hail	Crops and gardens damaged.	Do.
Eagle Pass, Tex.	3	5:30 p. m.	5 mi.		50,000	do	Crops, roofs, windows, and auto tops damaged.	Do.
Milan, Kans. (2 miles east of)	3	P. m.			1,000	Wind	A farmhouse and other buildings wrecked.	Do.
Caddo County, Okla.	5	A. m.			6,000	Hail	Damage chiefly to crops; path 8 miles long.	Do.
Cotton County, Okla.	5	2 p. m.	3 mi.		10,000	do	Crops badly injured; path 7 miles long.	Do.
Ellinwood, Kans. (east of)	5	3:45 p. m.	440		2,000	Tornado	Farm property damaged; path 4 miles.	Do.
Adams County, Nebr. (northwestern)	5	4 p. m.	200		9,000	do	Farm buildings damaged over path several miles long.	Do.
Turon to Langdon, Kans.	5	do	880		8,000	Tornado and hail	Damage chiefly to farm property; several persons injured; path 15 miles.	Do.
Lorraine (near) to Ellsworth (near), Kans.	5	4:20 p. m.	500		30,000	Tornado	Damage chiefly to farm property; path 19 miles.	Do.
Ellinwood (near) to Chase (near), Kans.	5	5:15 p. m.	880		300,000	do	Farm property in path totally destroyed; about 40 box cars blown from tracks; livestock killed; path 25 miles.	Do.
Antelope County, Nebr.	5	5:30 p. m.	55		12,000	do	Farm buildings wrecked; path 7 miles.	Do.
Lincoln to Barnard, Kans.	5	6-6:30 p. m.	440		12,000	do	Farm buildings damaged path 10 miles.	Do.
Clarke County, Iowa	5	7:30 p. m.			3,000	Tornado and hail	Character of damage not reported; path 3 miles.	Do.
Woodbury County, Iowa	5	do			6,000	Wind and hail	Character of damage not reported.	Do.
Falun, Kans. (near)	5	9 p. m.				Tornadoic wind	Minor property damage.	Do.
Solomon (near) to Riley (near), Kans.	5	9:30-10 p. m.	440		100,000	Tornado	Extensive damage in farm area; 20 persons injured; path 50 miles long.	Do.
Decatur, Jones, and Taylor Counties, Iowa	5	P. m.				Wind	Details not reported.	Do.
Maywood, Ill.	5		25-33		4,000	Tornado	Considerable damage over path 4 blocks long.	Do.
Gage County, Nebr.	6	3-7 a. m.				High wind	Windmills and farm buildings wrecked.	Do.
Austin, Tex.	6	10 a. m.				Wind	Buildings damaged; 3 persons injured.	Do.
Decatur County, Iowa	6	11 a. m.			5,000	Tornado and hail	Character of damage not reported; path 5 miles.	Do.
Ablene, Tex., and vicinity	6	11:49 a. m.			25,000	Wind	Buildings and crops damaged.	Do.
Spur, Tex. (near)	6	Noon		1		do	Poorly constructed buildings damaged; 10 persons injured.	Do.
Eastland, Tex.	6	12:20 p. m.			2,000	do	Houses and derricks damaged; 1 person injured.	Do.
Mahaska County, Iowa	6	12:25 p. m.			4,000	Tornado	Character of damage not reported; path 5 miles.	Do.
Poweshiek County, Iowa	6	2 p. m.			75,000	do	Character of damage not reported; path 12 miles; 2 persons injured.	Do.
Oklahoma City, Okla., and vicinity	6	2:30 p. m.	1,320		50,000	Wind	A few houses unroofed; garages damaged; oil derrick, smokestack and boiler blown down; path one-half mile.	Do.
San Antonio, Tex. (near)	6	3:15 p. m.	300	1	20,000	do	Airplane hangar damaged; 1 person injured.	Do.
Bynum to Frost, Tex.	6	3:30 p. m.	400	38	2,000,000	Tornado	Everything in path destroyed.	Do.
Ennis, Tex.	6	4 p. m.	220	3	100,000	do	Buildings and crops destroyed or damaged.	Do.
Grant County, Wis. (east-central)	6	4 p. m.			2,000	Severe squall	Farm property damaged.	Do.
Gonzales to Ottine, Tex.	6	4:30 p. m.	2 mi.	1	45,000	Wind	Buildings damaged; poultry and livestock killed; crops injured.	Do.
Kennedy to Nordheim, Tex.	6	4:45-5 p. m.		36	127,000	Tornado	Buildings and crops damaged.	Do.
Bronson, Tex. (near)	6	9:30 p. m.	200	2	11,000	do	Buildings, farm implements, and crops damaged; livestock injured.	Do.
Allamore, Linn, Ringgold, Tama, and Delaware Counties, Iowa	6	P. m.			14,500	Wind	Character of damage not reported.	Do.
Benton, Bremen, Johnson, Monroe, Plymouth, Winneshiek, and Woodbury Counties, Iowa	6	do			41,000	Wind and hail	do	Do.
Falls City, Hobson, and Kaines City, Tex.	6	do			77,500	Hail	Damage chiefly to crops.	Do.
Mangum and Lawton (near), Okla.	6	do				do	Considerable damage to windows and roofs; minor crop damage.	Do.
Clifton, Tex.	6					Wind	Several buildings wrecked; crops injured.	Do.
Coleman, Tex.	6					do	Crops damaged; oil derricks blown down.	Do.
Clinton County, Iowa	7	5 a. m.			2,000	do	Character of damage not reported.	Do.
Delaware County, Iowa	7	3:30 p. m.			1,500	Wind and hail	do	Do.

* Includes damage at Fillmore, Mo.

Severe local storms, May, 1930—Continued

Place	Date	Time	Width of path (yards)	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Chase to Lyons, Kans.	7	5 p. m.	2-3 mi.			Hail	Heavy damage to growing crops, chiefly wheat, over path 12 miles long.	Official, U. S. Weather Bureau.
Graham County, Kans.	7	6-7 p. m.	2-4 mi.			do	Orchards and gardens severely injured.	Do.
Nekoma to Bison, Kans.	7	P. m.	3 mi.			do	Wheat damaged 25 to 50 per cent over path 18 miles long.	Do.
New Tazewell, Tenn.	7					Wind	Buildings and trees suffer considerable damage.	Do.
Anna and Cobden, Ill., and vicinity.	8	12:10 p. m.	3 mi.		\$10,000	Hail	Fruit and truck damaged over path 15 miles long.	Do.
Wayne County, Iowa.	8	5:30 p. m.			200	Tornado	Character of damage not reported; path 4 miles long.	Do.
Mulberry, Ark.	8	6 p. m.				do	No damage reported.	Do.
Furnas County, Nebr.	8	6-7:30 p. m.	440		50,000	Tornado and hail	Many farm buildings wrecked or damaged; trees uprooted; path 34 miles long.	Do.
Campbell, Nebr.	8	5 p. m.	30		2,500	Tornado	Number of houses damaged; path short.	Do.
Kearney County, Nebr.	8	8-8:30 p. m.	25 mi.		50,000	Wind	Many farms badly damaged; wind tornadic in places; path 25 miles long.	Do.
Hastings Nebr.	8	9-9:30 p. m.	1,760	1	750,000	Heavy hail and tornadic winds.	Many buildings completely demolished, others damaged; telephone and light wires and trees blown down; 20 persons injured; path 4 miles.	Do.
Adams and Clay Counties Nebr.	8	9-11 p. m.	15 mi.		10,000	Hail	Damage chiefly to crops.	Do.
Murphy, Nebr.	8	11:30 p. m.	6 mi.		30,000	do	Windows broken; crops, roofs and siding damaged.	Do.
Chandler, Newbury, and vicinity, Ind.	8				7,000	do	Vegetation almost completely ruined; practically every home in Chandler damaged.	Do.
Woodbury County, Iowa.	9	1:30-2:30 a. m.			1,200	Wind	No details reported.	Do.
Buena Vista County, Iowa.	9	2:30-2:40 a. m.			15,000	Tornado and hail	No details reported; path 8 miles long.	Do.
Wright County, Iowa.	9	4 a. m.			1,000	Tornado	No details reported; path one-third mile long.	Do.
Roff, Okla., and vicinity.	9	3:30 p. m.	4 mi.		30,000	Hail	Damage chiefly to crops.	Do.
North Bend, Nebr.	9	5 p. m.	33		4,000	Tornado	Farm buildings damaged; path 10 miles.	Do.
Crowder to Kinta (near), Okla.	9	5:10 p. m.				do	No details reported.	Do.
Lyon, Sioux, and Plymouth Counties, Iowa.	9	6 p. m.			11,050	Wind and hail	do	Do.
Fillmore and Clay Counties, Nebr.	9	6:45 p. m.			3,500	Wind	Trees and small buildings damaged.	Do.
Polk County, Nebr.	9	7 p. m.	440		7,500	do	Buildings damaged; 3 persons injured.	Do.
Crane, Tex., and vicinity.	9	11 p. m.	15 mi.		5,000	Wind and hail	Some crop loss; a few buildings unroofed; small buildings overturned.	Do.
Yarrellton to Burlington, Tex.	9		3 mi.			Hail	Cotton crop a total loss.	Do.
Lakin, Kans., and vicinity.	10	1 a. m.	6 mi.		4,000	do	No details reported.	Do.
Peck, Kans.	10	8 a. m.	100		100	Tornadic wind	Minor damage to property over path one-half mile long.	Do.
Booneville, Ark.	10	11:30 a. m.			1,000	Wind	Some damage to property.	Do.
Lancaster County, Nebr. (southwestern.)	10	1:30 p. m.	880		5,000	do	A number of small buildings damaged; path 7 miles long.	Do.
Crawford County, Iowa.	10	3:30 p. m.			5,000	do	No details reported.	Do.
Haskell, Grant, Stanton, and Stevens Counties, Kans.	10	2:30 p. m.				Several small tornadoes.	Farm property damaged.	Do.
Clark County, Wis.	10				8,000	Severe squall	Damage to farms over path 10 miles long.	Do.
Ford and Clark Counties, Kans.	12	4-5 p. m.			8,000	Hail	Heavy property damage near Bucklin.	Do.
Tahoka, Tex.	12	5 p. m.	7 mi.		50,000	do	Severe damage to buildings; minor crop injury.	Do.
Hondo, Tex.	12	7 p. m.	3 mi.		10,000	do	Crops damaged.	Do.
Weatherford, Tex., and vicinity.	12	do	21 mi.		500,000	Rain, hail, and freshets.	Four-fifths of damage caused by floods; livestock killed or drowned.	Do.
Aledo, Tex.	12	10 p. m.	400		14,000	Wind	Damage chiefly to crops; 2 persons injured.	Do.
Major, Woods, Alfalfa, Kiowa, Custer, Grant and Washita Counties, Okla.	12				450,000	Hail	Crops in much of area total loss; other property damaged.	Do.
Clinton County, Mich.	13	2:30-3 p. m.	880		200,000	Tornado and hail	32 barns wrecked; many residences damaged; valuable timber ruined; orchards uprooted; path 35 miles long.	Do.
Haskell, Tex.	13	3 p. m.	2 mi.			Hail	Considerable damage to gardens, fruits, window, and roofs.	Do.
Rotan, Tex.	13	8 p. m.	6 mi.		25,000	do	Farm property damaged; all crops must be replanted.	Do.
Blaine and Lycan, Colo.	14	Midnight-2 a. m.				do	Loss of crops in three-fourths of area.	Do.
Johnson County, Kans.	14	2 a. m.	4 mi.			do	Hundreds of acres of wheat destroyed.	Do.
Texas County, Okla.	14	3 a. m.	4 mi.		275,000	Hail	Heavy crop damage over path 20 miles long.	Do.
Vernon, Tex., and vicinity.	14	10:30 a. m.				Wind, hail, and rain.	Crops, homes, and other property damaged.	Do.
Killeen, Tex.	14	4:30 p. m.	2 mi.		5,000	Wind	Crops damaged.	Do.
Swertner to Granger, Tex.	14	6 p. m.	5 mi.		10,000	Hail	Damage chiefly to crops.	Do.
Lakin, Kans., and vicinity.	14	7:30 p. m.	3 mi.		15,000	do	Roofs and windows pierced; crops badly damaged in some areas.	Do.
Clacks, Miss. (near)	14					do	800 acres of cotton destroyed.	Do.
Electra, Tex.	14		6 mi.		100,000	Hail, rain and wind.	Extensive crop damage, some loss of livestock.	Do.
Liberal, Kans. (15 miles west of).	14		5 mi.		20,000	Hail	Many acres of wheat beaten.	Do.
Lowndes County, Ga.	14					do	Corn, cotton and trees stripped.	Do.
Sabinal, Tex. (near)	14		5 mi.		150,000	Wind, rain and hail.	Heavy damage to crops and other property.	Do.
Garden City, Leoti, and Lakin, Kans.	15	4 a. m.			20,000	Hail	Grains damaged 25 to 50 per cent in places.	Do.
Custer County, Okla.	15	8 a. m.	5 mi.			do	Heavy crop and property damage.	Do.
West Carroll and East Carroll Parishes, La.	15	2:30 p. m.	3 mi.		59,000	do	Crops, roofs, windows, and auto tops damaged; path 15 miles.	Do.
Bloom, Colo.	15	5 p. m.	1,760			do	Sheep and small animals killed; cattle and horses severely injured; roofs and windows pierced.	Do.
Dundee to Mankins, Tex.	15	5:30 p. m.	440		25,000	Tornado	Buildings and derricks damaged; 6 persons injured.	Do.
Ellis, Dewey, Canadian, and Bryan Counties, Okla.	15					Hail	Many thousands of dollars damage to crops and other property.	Do.

Severe local storms, May, 1930—Continued

Place	Date	Time	Width of path (yards)	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Fremont Experiment Station, Colo.	15					Hail	Storm very severe; character of damage not reported.	Official, U. S. Weather Bureau.
Pittsburg, Tex.	15					Tornado and rain	Considerable damage to crops and property.	Do.
New Orleans, La.	16	3:15 p. m.	1.5 mi.		\$50,000	Thundersquall	Several buildings damaged; telephone wires blown down; path 1.5 miles long.	Do.
Avondale, Colo., and vicinity.	16	3:30-4 p. m.	2-3 mi.			Hail	Considerable damage to crops and roofs of buildings.	Do.
Lufkin, Tex.	16	5 p. m.	7 mi.			do	Tomato and other crops damaged; windows and roofs pierced.	Do.
Woodward County, Okla.	17	6 a. m.	6 mi.			do	Crops severely damaged over path 15 miles long.	Do.
Slayden, Tex.	17	10:30 a. m.	16		500	Tornado	Slight damage.	Do.
Rocky Ford, Colo.	17	12:30 p. m.	3 mi.		40,000	Hail	Severe damage to crops and small fruits; some poultry killed.	Do.
Lamar, Colo., and vicinity.	17	1 p. m.	10-15 mi.		50,000	do	Crops damaged and livestock killed.	Do.
Mont Belvieu, Tex.	17	3 p. m.	100		6,000	Tornado and rain	Derricks damaged; 6 persons injured.	Do.
Bristol, Colo. (near)	17	5 p. m.	6 mi.		25,000	Hail	Crops damaged.	Do.
Dublin, Tex. (near)	17	6 p. m.	6 mi.			Hail and wind	Severe losses to crops; poultry killed; roofs damaged.	Do.
Cleburne, Tex.	17	7 p. m.	6 mi.		500,000	do	Extensive property damage.	Do.
Ballinger, Tex.	17	8:30 p. m.				Hail	Livestock and poultry killed; all crops considerably damaged.	Do.
Ellis to Dallas Counties, Tex.	17	do	3 mi.	3		Rain, hail, and wind.	Widespread damage to crops and other property.	Do.
Madison, Tex.	17	9 p. m.	50		3,500	Tornado	Chief damage to property other than crops.	Do.
Breckenridge, Tex.	17					do	Several oil derricks demolished.	Do.
Broken Arrow, Okla. (near)	17					do	Minor property damage.	Do.
Marion, Ark.	18	10:30 a. m.	440	4	7,600	do	Some property destroyed or damaged; 8 persons injured.	Do.
Somerville, Tenn. (near)	18	Noon	200		25,000	do	Business property damaged; many shade trees broken; 4 persons injured.	Do.
Tichnor to Wabash, Ark.	18	3:30 p. m.		14	14,500	do	34 persons injured; considerable property damage.	Do.
Chattanooga, Tenn.	18	P. m.				Thunderstorm and wind.	Falling trees and limbs broke telephone and electric wires; cars delayed; streets flooded and badly washed.	Do.
Knoxville, Tenn.	18					do	Trees and poles blown down paralyzing traffic; minor damage to buildings.	Do.
Taylor County, Tex.	18					Hail	Crops severely damaged.	Do.
Startup, Wash.	20	2:30 p. m.	1,700			Hail and wind	Fruits considerably damaged.	Do.
Black Hawk County, Iowa.	20	5-6 p. m.			55,200	Hail, wind and flood.	Heavy damage by hail; considerable damage by flood.	Do.
Wewahitchka, Fla. (15 miles north of).	22	12:30 p. m.				Hail	Considerable damage to crops.	Do.
Tallahassee, Fla. (6 miles east of).	22	4:30-5 p. m.	880			do	Corn, cotton, and cane damaged; poultry killed.	Do.
Clare to West Branch, Mich.	23	1:30-3 p. m.	880-1,760		200,000	Tornado followed by hail.	Property of all kinds severely damaged or destroyed.	Do.
Madison, Fla. (6 miles south of).	23	5 p. m.			1,000	Hail	Tobacco, cotton, and corn damaged.	Do.
Baltimore, Md.	24			4		Thunderstorm and squall.	Storage plant unroofed; some damage by flooding.	Do.
Streator, Ill., and vicinity.	27	5:30-5:40 p. m.	880-3,520		140,000	Tornado	Heavy property damage; livestock killed; 8 persons injured; path 15 miles long.	Do.
Fort Assiniboine, Mont. (near).	28					Wind	Many acres of crops ruined, necessitating re-seeding.	Do.
Kalspell, Mont.	29	5:12 p. m.			1,500	Hail	Vegetable and flower gardens injured; glass in greenhouses and residences broken.	Do.
Arriba, Colo.	31	4-5 p. m.			5,000	Wind	Grain badly whipped.	Do.
Wagon Mound, Mora County, N. Mex.	31	5 p. m.	300	2	150,000	Tornado	40 dwellings and 8 business houses more or less wrecked; 20 persons injured.	Do.

RIVERS AND FLOODS

By R. E. SPENCER

The most severe floods of May were those in the Shreveport, La., river district along the Red and Sulphur and Cypress Rivers. Others of some importance, resulting from the same general rains, occurred to the south-westward in the rivers of east and central Texas, to the northward in the Arkansas and White Rivers, and to the eastward in the Ouachita and Pearl Rivers.

The rains which caused these rises, while most concentrated in northeastern Texas, were fairly continuous and occasionally excessive between May 3 and 17-18 from central Texas and Oklahoma eastward to Mississippi. The heaviest falls occurred at three and four day intervals beginning with the third.

In the Shreveport district, comprising the Red River and its tributaries above Shreveport, La., the streams rose steadily following the third, beginning with comparatively low to moderate stages and reaching flood stages and crests as indicated in the table at the end of this report. The crests at Finley, Tex., on the Sulphur River, and at Jefferson, Tex., on the Cypress River, were

the highest of record. Warnings were first issued for the Sulphur River, on the 3d, and with continued rains were subsequently amplified as necessary to cover the entire district. These forecasts were timely and adequate, and their dissemination was accomplished in a very effective manner, with the result that only five lives were lost, and about \$990,000 worth of livestock and other movable property were saved.

Concerning losses and the extent of overflow, the official in charge of the Weather Bureau office at Shreveport reports as follows:

The total loss in the Shreveport river district has been estimated at \$2,370,000. This figure covers the sections in Texas overflowed by the Sulphur and Cypress Rivers and the area overflowed by the Red River and its tributary bayous and creeks from the vicinity of New Boston, Tex., and Idabel, Okla., to the vicinity of Ninock, La., the river distances along the Red being about 300 miles. In Arkansas and Louisiana most of the damage resulted from the overflow of bayous and creeks back of the levees, and in Caddo Parish, La., the overflow was augmented to a great extent by the record-breaking flood waters from the Cypress River, which has an outlet into Caddo Lake and thence by connecting bayous and drainage canals to Cross Bayou that empties into Red River within the northern city limits of Shreveport. Cross Bayou is also an outlet for Cross Lake. Cross Lake is dammed to form a reservoir of many square miles for the main water supply of Shreveport.